

**SW SAMPLING--Quality control samples for NAWQA microbiology** (updated 7/11/03)

					<b>NWIS data-base information (Questions on coding samples for NWIS can be directed to Jeff Martin)</b>	<b>Comments</b>
<b>Type of sample</b>	<b>Description</b>	<b>Purpose</b>	<b>Frequency of collection</b>	<b>Criteria for acceptance</b>		
<b>Analytical QC--Parameter code 90902, <i>E. coli</i>, modified mTEC MF agar, col/100 mL</b>						
<b>Filter blank</b>  (Filter blank is not stored in NWIS as a QC sample)	Sterile buffered water filtered before processing the environmental sample	Determine sterility of equipment and supplies. Measures positive bias in the results for the associated environmental sample.	Every environmental sample	<i>Reject environmental sample results</i>	1. Enter the col/100 mL for the environmental sample into QWDATA. 2. Set the data quality indicator to "Q" (Reviewed and rejected). 3. Set Remark code to "V" (Value affected by contamination). 4. Set Value-qualifier code to "w" (High variability). 5. Enter ONE of these result-level comments: "X Target colonies in filter blank" OR "Nontarget colonies inhibited growth."	Dilution(s) used to calculate col/100 mL are used to determine percentage for qualification. Even though sample results are rejected, they are still stored NWIS. We include remark codes and result-level comments in the event that criteria will be changed later. It is, therefore, important to know why QC has failed criteria and by how much.
				If target colonies in filter blank are > 20 percent of target colonies in sample OR		
				If nontarget colonies in filter blank cover the plate, inhibiting growth of target colonies		
				<i>Qualify environmental sample results</i>	1. Enter the col/100 mL for the environmental sample into QWDATA. 2. Set Remark code to "V" (Value affected by contamination). 3. Set Value-qualifier code to "w" (High variability). 4. Enter this result-level comment: "X Target colonies in filter blank."	Dilution(s) used to calculate col/100 mL are used to determine percentage for qualification. Sample results are qualified in NWIS. We include remark codes and result-level comments in the event that criteria will be changed later. It is, therefore, important to know why QC has failed criteria and by how much.
				For target colonies, 5 to 20 percent of sample colony count		
				<i>Accept environmental sample results</i>	1. Enter the col/100 mL for the environmental sample into QWDATA. 2. Enter this result-level comment: "X Target colonies in filter blank."	
				For target colonies, < 5 percent of sample colony count		
<b>Procedure blank</b>  (Procedure blank is not stored in NWIS as a QC sample)	Sterile buffered water filtered after the sample	Measure the effectiveness of the rinsing technique. Measures negative bias in the results for the previous sample.	One every 10 samples	Same as for filter blank.	Same as for filter blank.	Include procedure blanks if analyst is inexperienced in membrane filtration and (or) if water is suspected to have high concentrations of target colonies.
<b>Positive control culture</b>  (Not stored in NWIS as a QC sample)	Pure cultures analyzed in the same manner as the sample	Ensure the procedure is correctly performed and test the integrity of the media. Measures positive or negative bias in the samples plated on this medium.	One per year per analyst	Will develop criteria with study units in 2002 and 2003; Tentative criteria- -for positive control, dilution series evident.  <i>Ohio District will email expected results to study units, and study units will email their results to the Ohio District</i>	None at this time. Ohio District will compile a spreadsheet with all results.	

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Type of sample	Description	Purpose	Frequency of collection	Criteria for acceptance	
<b>Field QC--Parameter code 90902, <i>E. coli</i>, modified mTEC MF agar, col/100 mL</b>					
<b>Field blank</b> (Stored in NWIS)	Sterile buffered water handled in the same manner as a sample	Assess overall contamination of samples by all sources and causes (field and lab).	One every 10 samples, spread out over sample period	Do not qualify individual environmental samples on the basis of field blanks.  <i>Contact Ohio District if contamination is found</i>	Enter colony count of field blank into QADATA--sample medium is "Q", sample type is "2", parameter code 99100 is "70" for sterile buffered water PO <sub>4</sub> /MgCl <sub>2</sub> or "60" for sterile saline buffered water (lot number is not required), parameter code 99101 is "80" for Ocala, parameter code 99102 is "100" for field
<b>Field replicates</b> (Stored in NWIS)	Split sequential grab sample (two bottles are collected and each bottle is plated twice)	Assess sampling and analytical variability	One every 10 samples, spread out over sample period	Do not qualify individual environmental samples on the basis of field replicates. High variability often is caused by incomplete mixing. Collect an additional set of replicates the next sampling trip if variability is greater than 30 percent.  <i>Contact Ohio District if variability of repeated replicate is greater than 30 percent</i>	<u>Enter colony count of 1st sample in QWADATA</u> --sample medium is "9" for SW, sample type is "7" for replicate, parameter code 99111 is "30" for replicate or "100" for more than 1 type of qc sample, parameter code 99105 is "50" for split sequential  <u>Enter colony count of the 2nd to 4th samples in QADATA</u> --sample medium is "R" for SW, sample type is "7" for replicate, parameter code 99105 is "50" for split sequential  Offset sample times so that splits of the same grab sample are closer in time than splits of different grab samples. For example: 1300, 1301, 1305, and 1306 where 1300 is the 1st environmental sample (grab sample 1, split 1), 1301 is the 2nd sample (grab sample 1, split 2), 1305 is the 3rd sample (grab sample 2, split 1) and 1306 is the 4th sample (grab sample 2, split 2).